REMARKS

In the Office Action dated March 21, 2007 patentability of claims 1-14 and 16-19 was addressed. Claims 1 and 7 were rejected under 35 U.S.C. §112, first paragraph. Claims 1, 7, and 19 were rejected under 35 U.S.C. §112, second paragraph. Claims 1-19 were rejected under 35 U.S.C. §101. Claims 1-4, 7-11, 14, 16-17, and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Agrawal et al.*, U.S. Patent No. 5,832,475, in view of *Chaudhuri et al.*, U.S. Patent No. 6,842,753, and in view of *Soderstrom et al.*, U.S. Patent No. 6,741,982. Claims 5-6, 12-13, and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Agrawal et al.*, U.S. Patent No. 5,832,475, in view of *Chaudhuri et al.*, U.S. Patent No. 6,842,753, in view of *Soderstrom et al.*, U.S. Patent No. 6,741,982, and in view of *Dageville et al.*, U.S. Patent Publication No. 2003/0065688.

I.   Rejection of Claim 1 and 7 under 35 U.S.C. §112

In the Office Action dated March 21, 2007, the Examiner rejected claims 1 and 7 under 35 U.S.C. §112, first paragraph as failing to comply with the enablement requirement. More specifically, the Examiner raised an issue with support in the specification for the term "apply". Applicants have amended claims 1 and 7 to further define the term "apply". The phrase "apply said estimated result size to memory allocation" has been removed and replaced with the language "computing memory requirement". Support for this amendment can be found in the Specification on page 5, lines 7-8. Claims 1 and 7 have been further amended to specify the implementation of the computation of the memory requirement. More specifically, Applicants have added language to the affect of allocating memory to support the operation based upon the computer memory requirement for the operation. Support for this amendment can be found in the Specification on page 11, lines 19-25. The amendments presented herein have support in the Specification and do not include any new subject matter. Furthermore, the amendments to claims provides an enabling implementation of the invention. Accordingly, Applicants respectfully request that the Examiner enter the amendments and remove the rejection of claims 1 and 7 under 35 U.S.C. §112, first paragraph.

II. Rejection of Claim 1, 7, and 19 under 35 U.S.C. §112, second paragraph

In the Office Action dated March 21, 2007, the Examiner rejected claims 1, 7, and 19 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. More specifically, the Examiner raised an issue with the phrase "applying said estimated result to memory allocation for said Group-By operation". Applicants have amended claims 1, 7, and 19 to remove the term "apply" and to replace the above noted phrase with an element of a computer memory requirement for the Group-By operation, and to allocate memory for the operation based upon a computed memory requirement. As explained above in the prior paragraph, support for the amended elements in found in the Specification. No new matter has been added to the pending application.

The Examiner further raised a rejection of claim 7 and the phrase "a processor in communication with storage media". Applicants have amended claim 7 to address this issue. Accordingly, Applicants respectfully request removal of the rejection of claims 1, 7, and 19 under 35 U.S.C. §112, second paragraph.

III. Rejection of Claims 1-19 under 35 U.S.C. §101

In the Office Action dated March 21, 2007, the Examiner rejected claims 1-19 under 35 U.S.C. §101 indicating the claims are directed to non-statutory subject matter. More specifically, the Examiner has indicated that the language of claims 1-2 and 4-6 fail to recite a tangible results. Applicants have amended claims 1, 7, and 19 to claim a tangible result for estimating the result size of a Group-By operation. The amendment to the claims does not add new subject matter to the application. The itemized support in the Specification can be found in the prior two sections of this Response. Accordingly, based upon the amendment to claims 1, 7, and 19, Applicants respectfully requests removal of the rejection of claims 1-19 under 35 U.S.C. §101.

IV. Rejection of Claims 1-4, 7-11, 14-17, and 19 under 35 U.S.C. §103(a)

In the Office Action dated March 21, 2007, the Examiner rejected claims 1-4, 7-11, 14,

16-17, and 19 under 35 U.S.C. §103(a) over *Agrawal et al.* in view of *Chaudhuri et al.* and in view of *Soderstrom et al.*

Applicants remarks pertaining to *Agrawal et al.* and *Chaudhuri et al.* in response to the prior Office Action are hereby incorporated by reference.

In the outstanding Office Action, that Examiner asserts that *Agrawal et al.* teaches "calculating a cumulative selectivity based upon aggregation of individual selectivity of each column in a group of tables in a Group-By operation (Col. 15, line 33 to Col. 16, line 19).[1] However, as noted in the prior Response, *Agrawal et al.* does not teach selectivity in a Group-By operation, and more specifically does not teach calculating a cumulative selectivity, as claimed by Applicants. Furthermore, *Chaudhuri et al.* teaches sampling for low selectivity queries, or queries having a group by operation. However, *Chaudhuri et al.* does not teach calculating a cumulative selectivity in a Group-By operation. The process of calculating the cumulative selectivity is defined by Applicants in Fig. 3 and described in page 10 of the specification. There is no teaching in *Chaudhuri et al.* to support calculation of cumulative selectivity. The Examiner then utilizes *Soderstrom et al.* to teach a database having multiple tables. In reviewing *Soderstrom et al.* there is no teaching for conducting a Group-By operation, or for calculating selectivity or cumulative selectivity associated with a Group-By operation.

To establish a rejection under 35 U.S.C. §103(a), all the claim limitations must be taught or suggested in the prior art.[2] If the prior are references do not teach or suggest every claim limitation of the Applicants' invention, then they do not meet every requirement under 35 U.S.C. §103(a) and are not sufficient to uphold a rejection under 35 U.S.C. §103(a).[3] In the present case, as stated above, the major difference between Applicants' invention and *Agrawal et al.*, *Choudhuri et al.* and *Soderstrom et al.*, is that Applicants are calculating a cumulative selectivity in a Group-By operation as an element in an estimation of a result size of said Group-By

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[1] See Office Action dated March 21, 2007, page 5.

[2] MPEP §2143.03 (Citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

[3] See MPEP §2143.

operation. Therefore, because *Agrawal et al.* and *Soderstrom et al.* do not teach or suggest calculating selectivity of any sort, and *Choudhuri et al.* does not teach calculating a cumulative selectivity, these prior art references do not teach every element of Applicants' claimed invention. Accordingly, the *Agrawal et al., Choudhuri et al.,* and *Soderstrom et al.* patents, when combined are not sufficient to uphold a rejection under 35 U.S.C. §103(a).

The Examiner has not established a <u>prima facie</u> case of obviousness with respect to the aforesaid set of claims, since the combination of references comes short of teaching each of the elements claimed by Applicants. It is respectfully suggested that the Examiner's rejection under 35 U.S.C. §103(a) which does not contain teachings of the pending claims is without merit and must be withdrawn. Accordingly, Applicants respectfully contends that the combination of *Agrawal et al., Choudhuri et al.,* and *Soderstrom et al.* does not meet the standard set by the CAFC's interpretation of 35 U.S.C. §103(a), and respectfully requests that the Examiner remove the rejection and direct allowance of claims 1-4, 7-11, 14, 16-17, and 19.

V. Rejection of Claims 5-6, 12-13, and 18 under 35 U.S.C. §103(a)

In the Office Action dated March 21, 2007, the Examiner rejected claims 5-6, 12-13, and 18 under 35 U.S.C. §103(a) over *Agrawal et al.* in view of *Chaudhuri et al.*, in view of *Soderstrom et al.*, and in view of *Dageville*, U.S. Patent Publication No. 2003/0065688.

Applicants remarks made in the prior Response and above pertaining to *Agrawal et al., Chaudhuri et al., Soderstrom et al.,* and *Dageville* are hereby incorporated by reference.

U.S. Patent Publication No. 2003/0065688 to *Dageville* pertains to a memory allocation for a computation associated with a query, and more specifically, to amending the memory allocation based upon changing needs of the query. However, *Dageville* does not teach or suggest the limitations of the iterative application of the cumulative selectivity. In fact, there is no teaching of the element of selectivity in *Dageville*. Rather, the iterative application taught in *Dageville* applies to relevant portions of a bitmap and not to the cumulative selectivity of the columns of a Group-By operation.

As noted above, to establish a rejection under 35 U.S.C. §103(a), all the claim limitations must be taught or suggested in the prior art.[4] If the prior are references do not teach or suggest every claim limitation of the Applicants' invention, then they do not meet every requirement under 35 U.S.C. §103(a) and are not sufficient to uphold a rejection under 35 U.S.C. §103(a).[5] In the present case, as stated above, the major difference between Applicants' invention and the alleged combination of *Agrawal et al.*, *Choudhuri et al.*, *Soderstrom et al.*, and *Dageville* is that Applicants are calculating a cumulative selectivity in a Group-By operation as an element in an estimation of a result size of said Group-By operation. With respect to claims 5 and 12, *Dageville* does not teach an iterative application of the mathematical relationship as claimed by Applicants. With respect to claims 6, 13, and 18, the query predicate of *Dageville* is in relation to verification of the join predicate.[6] However, as in the combination *Agrawal et al.*, *Choudhuri et al.,* and *Soderstrom et al.* there is no teaching for calculating a cumulative selectivity. The elements of claims 6, 13, and 18 are elements dependent upon the calculated cumulative selectivity. Accordingly, the *Agrawal et al., Choudhuri et al.,* and *Soderstrom et al.* patents, and the *Dageville* publication, when combined are not sufficient to uphold a rejection under 35 U.S.C. §103(a).

The Examiner has not established a <u>prima facie</u> case of obviousness with respect to the aforesaid set of claims, since the combination of references comes short of teaching each of the elements claimed by Applicants. It is respectfully suggested that the Examiner's rejection under 35 U.S.C. §103(a) which does not contain teachings of the pending claims is without merit and must be withdrawn. Accordingly, Applicants respectfully contend that the combination of *Agrawal et al., Choudhuri et al.,Soderstrom et al.,* and *Dageville* does not meet the standard set by the CAFC's interpretation of 35 U.S.C. §103(a), and respectfully requests that the Examiner remove the rejection and direct allowance of claims 5-6, 12-13, and 18.

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[4] MPEP §2143.03 (Citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

[5] See MPEP §2143.

[6] See paragraph 0094.

VI.   Conclusion

Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. Accordingly, Applicants request that the Examiner indicate allowability of claims 1-14 and 16-19, and that the application pass to issue. If the Examiner believes, for any reason, that personal communication will expedite prosecution of the application, the Examiner is hereby invited to telephone the undersigned at the number provided.

In light of the foregoing amendments and remarks, all of the claims now presented are in condition for allowance, and Applicants respectfully requests that the outstanding rejections be withdrawn and this application be passed to issue.

Respectfully submitted,

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